

A few notes will be made on *Circophyllia*. Filliozat (1914, pp. 96-97) has said:

"Grace à la grande complaisance de M. le Professeur Joubin, j'ai eu depuis l'occasion d'examiner attentivement au Muséum les échantillons de *Circophyllia truncata* de la collection Milne Edwards. Je puis alors constater que la diagnose des auteurs présentait des lacunes de la plus haute importance et que mes spécimens de la ferme des Boves, à Parnes, décrits sous le nom de *Felixopsammia arcuata* [Filliozat, 1910, p. 804, pl. 14, figs. 7-11] devaient être identifiés à *Circophyllia truncata* E. H."

From Filliozat's restudy of the type-species of *Circophyllia*, it is evident that none of the corals placed in *Antillia* by Duncan can be referred to *Circophyllia*, which is an Eupsammid genus. Duncan's *Antillia lonsdaleia*, *A. bilobata*, and *A. walli* are, therefore, without a proper generic designation.

I must now confess my own sins. Notwithstanding that it was known to me that the name *Antillia* was invalid, I applied it to species of corals as follows: *Antillia dubia* (Duncan) and *A. bilobata* Duncan (Vaughan, 1921, p. 115), *A. bilobata* Duncan (*idem*, p. 127), *A. dominicensis* Vaughan (*idem*, p. 152), *A. bilobata* Duncan and *A. walli* Duncan (*idem*, p. 157), *Antillia dominicensis* Vaughan (Vaughan and Hoffmeister, 1925, p. 324, pl. 3, fig. 9, pl. 4, figs. 1, 2, which are upside down), and *A. sawkinsi* Vaughan (Vaughan and Hoffmeister, 1926, p. 118, pl. 2, figs. 6, 6a).

I should accept responsibility for the misuse of the name by Hoffmeister (Vaughan and Hoffmeister, 1926, p. 119, pl. 2, figs. 7, 7a, 8, 8a) in his *Antillia bullbrookii* and by Faustino (1927, p. 152, pl. 37, figs. 2, 3) in his designation of *Antillia constricta* Brueg. *A. constricta* does not belong to the mussoid corals.

It is also probable that I misled Yabe and Sugiyama in their use of the name *Antillia*.

I shall not undertake a complete revision of the species that have been confused under *Antillia*, but I shall list the American species, the generic identification of which seems certain, and comments will be made on a few other species.

The species which belong to *Antillia* as represented by the type-species, but which are now referred to *Syzygophyllia*, because that is the older name, are as follows:

Syzygophyllia gregorii (Vaughan)
dentata (Duncan)
hayesi (Vaughan)

The American Miocene species which have been referred to *Antillia* and which are now placed in the genus *Antillophyllia* are as follows:

Antillophyllia lonsdaleia (Duncan) genotype
 bilobata (Duncan)
 walli (Duncan)
 dubia (Duncan) (described as *Flabellum*)
 dominicensis (Vaughan)
 sawkinsi (Vaughan)
 bullbrooki (Hoffmeister)
 ponderosa (M. Edw. and H.)

I am in doubt regarding *Antillia explanata* Pourtalès, a Recent Barbadian species.

A few Indo-Pacific living species which obviously belong to *Antillophyllia* are *A. geoffroyi* (Audouin), *A. constricta* (Brueg.), *A. sinuata* (Gardiner), and *A. flabelliformis* (Yabe and Sugiyama).

Yabe and Sugiyama (1931) repeated Duncan's error in their treatment of *Antillia*, but I have already stated that I may be at least partly to blame for their confusion. *A. constricta* Brueg. and *A. flabelliformis* Yabe and Sugiyama clearly belong to *Antillophyllia*, and *A. duncani* Yabe and Sugiyama probably does. But *Antillia japonica* Yabe and Sugiyama and *A. nomaensis* Yabe and Sugiyama are musoid corals and do not belong to the same genus as the other species. The last mentioned two species do not appear to be referable to *Syzygophyllia* but look as if they probably represent the young stages of one or more species of musoid corals which are compound in the adult stages.

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PALEONTOLOGY.—*A new species of Lepidocyclus from the Panama Canal Zone*.¹ THOMAS WAYLAND VAUGHAN, Scripps Institution of Oceanography, and W. STORRS COLE, Ohio State University.

The species described below was picked out of material collected by Prof. R. W. Chaney for the senior author in the Panama Canal Zone, at a locality formerly known as Bohio Ridge Switch. The locality is the same as no. 6025 of the Vaughan and MacDonald collections made in 1911 (See MacDonald, 1919, p. 540, and pl. 154).

Lepidocyclus (Lepidocyclus) pancanalis Vaughan and Cole, n. sp.
Figs. 1-9.

Test small, lenticular, relatively inflated, slope from central area to margin nearly uniform, without or with a very narrow marginal flange. Outline in plan subcircular or faintly polygonal. One vaguely hexagonal specimen has obscure radii at the edge (Fig. 6). The ornamentation is of two intergrading kinds. On some specimens there are over the center of the test small papillae which are about 130 μ in diameter, as shown on Figures 1-4, 6. On other specimens the papillae are larger and tend to fuse. The latter kind of ornamentation grades into costulation of the apex, such as is represented by Figure 5. Although four flattish costae, with intervening depressed areas, are shown on the apex of this specimen, the costulation is indefinite. A specimen not figured has an apical, central, coarse papilla, with smaller papillae and faint costules around it. Over the centers of some specimens, Figs. 1 and 2, there are slight depressions. It seems that no two specimens are exactly alike. The foregoing notes are based on seven specimens, six of which are figured.

The diameter of megalospheric specimens ranges from 1.5 to 2.0 mm. and the thickness through the center ranges from 0.75 to 1.0 mm. Ratio of diameter to thickness, about two to one.

There are two subequal, small, embryonic chambers which are divided by a straight wall. The length of the two chambers is about 185 μ ; width, about 145 μ ; thickness of wall, about 25 μ .

The equatorial chambers are of three intergrading kinds. Most of the chambers have curved outer and converging inner walls; some of them are

¹ Received August 16, 1932.

diamond shaped; those nearest the periphery are nearly hexagonal or of short spatulate form. The chambers near the center have a transverse diameter of 35 to 45 μ and a radial diameter of 30 to 40 μ ; those near the periphery have a transverse diameter of about 50 μ and a radial diameter of about 60 μ . Near the center the height is about 30 μ . The height increases very gradually toward the periphery where it is about 55 μ . The chambers are connected by stolons, the openings for which are about 7 μ in diameter. They are shown in the vertical illustrated by Figure 8.

The lateral chambers form regular tiers. There are about 10 in a tier on each side of the equatorial layer over the center. Outward, the number in a tier regularly decreases toward the periphery where there is only one layer on each side of the equatorial layer. Just over the embryonic apparatus the height is about 20 μ and the length about 40 μ . There is increase in size outward until at the periphery over the central area the height is about 40 μ and the length about 60 μ . A few relatively strong pillars are developed between the tiers over the center of the test.

The species to which *L. pancanalis* is most nearly related is *L. canellei* Lemoine and R. Douvillé. *L. canellei* is usually larger, but the senior author has specimens of a dwarf variety from Arbol Grande, near Tampico, Mexico. In *L. canellei* the ratio of the diameter to thickness is greater, and in perfectly preserved specimens there is a distinct flange which may be peripherally thickened. *L. canellei* lacks the pillars and the thickened surface papillae and costulations of *L. pancanalis*. The equatorial chambers of *L. canellei* are strikingly regular hexagonal in shape, while those of *L. pancanalis* are dominantly of diamond or short-spatulate form.

Co-types and topo-types. The specimens on which the foregoing description is based and which are here illustrated, have been donated to the U. S. National Museum. Topotypes, Scripps Institution of Oceanography.

Geologic relations and associated species. The locality at which the type-specimens were collected has already been stated. The geologic horizon is given by MacDonald as the upper part of the Culebra formation, but actually the stratigraphic relations of the bed from which the specimens were collected is not certainly known. The senior author surmises that the bed does not belong within, but lies below the Culebra formation.

Associated with *L. pancanalis* at its type locality are other organisms as follows (see Vaughan, 1919b, pp. 550-554; 1924, pp. 787, 802):

Camerina panamensis (Cushman)

Heterostegina n. sp. (described in a ms. by D. W. Gravell)

Miogypsina (*Miolepidocyclina*) *panamensis* (Cushman)

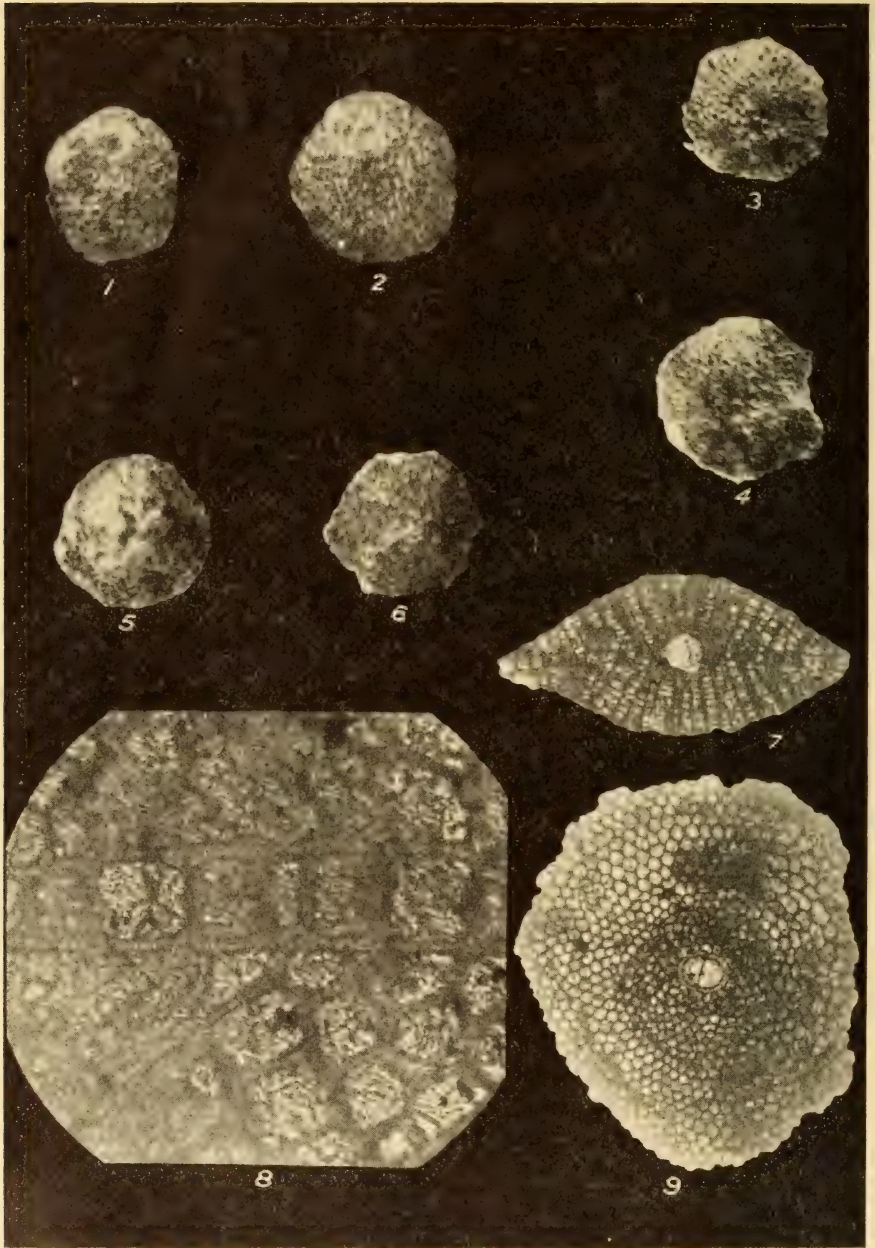
Lepidocyclina sp., erroneously identified by Cushman as *L. chaperi*.

In Antigua, *L. pancanalis* has been found in collections made by W. R. Forrest at Cocoanut Hall, in the upper stratified beds at Half Moon Bay, and at southeast point, Long Island. Commonly, associated with *L. pancanalis* at these localities are:

Lepidocyclina parvula Cushman

undosa Cushman

vaughani Cushman



Lepidocyclina (Lepidocyclina) pancanalis Vaughan and Cole, n.sp.

Figs. 1-6.—Surface views, $\times 12$, of six specimens.

Fig. 7.—Vertical section, $\times 28$.

Fig. 8.—A part of a vertical section, $\times 200$, to show the stoloniferous apertures in the walls of the equatorial chambers. Three pairs of the apertures are represented by the pairs of white dots.

Fig. 9.—Equatorial section, $\times 28$, to show the embryonic and equatorial chambers.